

REMARKS

Applicants respectfully request reconsideration of the application in view of the amendments above and the remarks below. Claims 1, 3, 5-12, 17-19, 21-22, 24-27, 29-35, 39 and 41-48 are currently pending, of which claims 1, 24, 39, 41, 47 and 48 are independent claims.

Claims 1-40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,246,898 to Vesely et al. ("the Vesely patent").

Examiner Interview

Applicants appreciate the courtesies extended by Examiners Cheng, Winakur and Jung during the personal interview conducted on August 22, 2006. During the interview, Applicant's proposed amendments were discussed with respect to the Vesely patent and other art in the field of navigational medical imaging. No agreement was reached with respect to the patentability of the claims and the Examiners indicated that further searching would be required.

The Claims distinguish over known art

During the personal interview, the Examiners discussed generally the field of radiological target tracking and image guidance. Applicants note that the claimed invention is directed to Image Guided Intervention (IGT). With respect to the claimed invention, it is important to consider the difference between IGT and Image Guided Radiation Therapy (XRT). While both types of therapies and technologies often include the concept of being "Image Guided," the two technological challenges are quite different, and in fact, are somewhat complementary. XRT related image guidance technologies focus on target tracking so that radiation delivery can be timed (turned on and off) to converge on and destroy a lesion, for example. IGT is a more comprehensive spatial registration that requires more than just target tracking. IGT is concerned with the continuous transformation of patient to image space such that instruments like needles, catheters, and drills can be guided through anatomy avoiding critical structures along the way to targeted lesions.

The Claims Are Patentable over the Vesely patent

Claims 1-40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,246,898 to Vesely et al. (“the Vesely patent”).

Independent Claim 1 and its dependent claims

Unlike independent claim 1, which recites “creating a dataset that includes a plurality of images associated with a cyclical movement of a body part . . . associating a separate transformation from a tracking space to an image space with each image in the dataset; calculating for each image in the dataset a dataset vector using a position of an external reference marker and a position of the non-tissue internal reference marker” the Vesely patent fails to disclose or suggest such an arrangement. As discussed during the personal interview, the Vesely patent fails to disclose or suggest at least “images associated with a cyclical movement of a body part.” For at least this reason, independent claim 1 is allowable over the Vesely patent.

Based at least on their dependence upon independent claim 1, dependent claims 3, 5-12, 17-19 and 21-22 are also allowable over the Vesely patent.

Independent claim 24 and its dependent claims

Unlike independent claim 24, which recites “superimposing a representation of the instrument on an image in which the non-tissue internal reference marker appears, the image being selected based on a look-up table having data associated with a plurality of images” the Vesely patent fails to disclose or suggest such an arrangement. As discussed during the personal interview, the Vesely patent fails to disclose or suggest at least “the image being selected based on a look-up table having data associated with a plurality of images.” For at least this reason, independent claim 24 is allowable over the Vesely patent.

Based at least on their dependence upon independent claim 24, dependent claims 25-27 and 29-35 are also allowable over the Vesely patent.

Independent claim 39

Unlike independent claim 39, which recites “receiving an image signal that includes a plurality of images, each image from the plurality of images depicting a non-tissue internal reference marker, the plurality of images associated with a cyclical movement of a body part” the

Vesely patent fails to disclose or suggest such an arrangement. As discussed during the personal interview, the Vesely patent fails to disclose or suggest at least "the plurality of images associated with a cyclical movement of a body part." For at least this reason, independent claim 39 is allowable over the Vesely patent.

New claims 41-48

Applicant has added new claims 41-48, which are directed to a processor-readable medium storing code representing instructions to cause a processor to perform a process. Independent claims 41, 47 and 48 are in consonance with claims independent claims 1, 24 and 39, respectively and are allowable for at least the reasons discussed above with respect to those independent claims. Dependent claims 42-46 are allowable at least based on their dependence upon allowable independent claim 41.

Conclusion


All of the stated grounds of objection and rejection have been properly traversed or rendered moot. The Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. The Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that further personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this application is respectfully requested.

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